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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/534,107

11/22/2006

Bernhard Mattes

10191/3851

5194

26646 7590 08/18/2010  
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EXAMINER

PIPALA, EDWARD J

ART UNIT

PAPER NUMBER

3663

MAIL DATE

DELIVERY MODE

08/18/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/534,107 | <b>Applicant(s)</b><br>MATTES ET AL. |  |
|                              | <b>Examiner</b><br>EDWARD PIPALA     | <b>Art Unit</b><br>3663              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-19,21-24,27-29 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-19,21-24,27-29 and 31-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

1. This Office action is in response to Applicant's amendments and remarks of 4/19/10.  
The previous rejection under 35 U.S.C 102(e) has been withdrawn.  
Claims 17-19, 21-24, 27-29 and 31-38 are presently pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19, 21-24, 27-29 and 31-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ari (6,813,370) in view of Hart, Jr. et al. (6,130,706).

As previously noted, Arai teaches a lane recognition apparatus which makes use of a pair of stereo images of a scene in front of the vehicle in front of the vehicle obtained from a stereoscopic camera for calculating the distance information, in this instance to roadway lane markings (from the abstract). Figure 1 shows the stereoscopic camera (1), stereo processing (6), solid object recognition (11), as well as actuator systems 13, 14, 15, and a vehicle behavior (dynamics) control section 16. The background of the invention discloses monitoring vehicle surroundings and recognizing road configurations, where the summary of the invention near the bottom of col. 1 teaches lane recognition as well as recognizing the position of lane markers in real space using distance information derived from a pair of picture images. In col. 7, line 13 Arai teaches consideration of behaviors of the vehicle, including

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forward and backward movements as well as pitching and the like (vehicle dynamics).

Beginning in col. 11, lines 10+ Arai particularly discusses the use of parallax and relates pixels in determining distance data, including identifying the (x, y, z) coordinates of a point in real space, where x denotes a position along the widthwise direction of the vehicle, y denotes a position in the vertical (height) direction of the vehicle, and z denotes a position in the longitudinal direction of the vehicle (a distance in front of the vehicle). Col. 11, line 50+ further teaches consideration of the roll angle of the own vehicle or a bank angle of the road, as part of a road height model, and is further discussed in col. 13, line 41+.

Hart, Jr. et al. teaches a process for determining vehicle dynamics, including determining the slip angle of a vehicle (which is analogous to the converse of determining a vehicle's yaw angle), by optically monitoring movement in one or more of the camera images of the road surface as the vehicle passes over it (from the abstract), as shown in figure 2B, and further discussed in the middle and bottom portions of col. 1 with respect to vehicle dynamics including yaw, lateral acceleration, longitudinal acceleration and steering angle.

Accordingly, it would have been obvious to one of ordinary skill in the art to have incorporated the teachings of Hart, Jr et al. with respect to sensing or determining dynamic vehicle parameters relating to yaw and lateral acceleration, within the context of the lane marker recognition system of Arai, in order to determine not only relative positioning of the vehicle with respect to lane markers but also determine vehicle attitude through yaw and lateral acceleration detection, so as to enable more precise, complete and effective implementation of a vehicle dynamics actuator within the context of the scene image based lane recognition and control system and method of Ari by detection of position of lane markers and controlling at least one vehicle dynamics control actuator in response thereto.

### ***Response to Arguments***

3. Applicant's arguments filed 4/19/10 have been fully considered but they are not persuasive. While the previous rejection of claims 17-21 27-31, 34 and 37 under 35 U.S.C. 102(e) has been withdrawn, these claims have presently been added to the rejection of all of the pending claims under 35 U.S.C. 103(a).

Applicant's arguments with respect to the previous rejection under 35 U.S.C. 103(a) relating to the orientation of the sensors, determining fixed sampling points and a sampling vector with X, Y and Z components are not seen to be persuasive at least because the combination of Ari and Hart, Jr. et al., and in particular Hart itself teaches and discloses determining an actual direction of movement in conjunction with the known orientation of the optical equipment so as to determine the direction and slip angle of the vehicle in real time, Where Ari primarily provides for determination of detected object position data with respect to vehicle attitude and position control.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PIPALA whose telephone number is (571)272-1360. The examiner can normally be reached on M-F 9:30 - 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for

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unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward Pipala/  
Examiner, Art Unit 3663